DISTRIBUTION OF PLANTS WITH EXTRAFLORAL NECTARIES IN HAWAII VOLCANOES NATIONAL PARK

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Extrafloral nectaries are sugar-water secreting glands on plants which attract numerous nectar-feeders but not pollinators. They have been repeatedly shown to be the site of ant-plant mutualism: plants are protected from herbivores by the ants while the ants receive food. Since there are no ants native to Hawai'i, it was hypothesized that none of the endemic plants would have extrafloral nectaries.

Thirty-one of 614 species growing in Hawaii Volcanoes National Park were found to have extrafloral nectaries. Nine of these are of pantropic distribution or were introduced by the Polynesians, 19 are recently introduced exotics and 3 are endemics. Acacia koa (koa), Erythrina sandwicensis (wiliwili) and Pteridium aquilinum var. decompositum (bracken fern, kilau) are the endemics with functional extrafloral nectaries. Two species which produce extrafloral nectar elsewhere, Passiflora foetida (pohapoha) and Ipomoea indica (ko'ali) do not secrete nectar in H.V.N.P.

The actual abundance of EFN-plants in Park communities is low: except for koa-dominated sites, cover by plants with extrafloral nectaries was 0 to 3%. It is hypothesized that plant species evolving in Hawai'i tended to lose nectaries, but that a few species established mutualism with some, presently unknown, Hawaiian invertebrate.